

ASSESSMENT OF IMPACTS TO CRITICAL HABITAT FOR Columbia River Bull Trout or Coastal Puget Sound Bull Trout Designated 26 September 2005

COE reference: [add reference number](#)

Applicant: [add applicant name](#)

Primary Constituent Elements

From 50 CFR Part 17, 70 FR 562212-311

The primary constituent elements determined essential to the conservation of bull trout (*Salvelinus confluentus*) are:

(1) Water temperatures that support bull trout use. Bull trout have been documented in streams with temperatures from 32 to 72 °F (0 to 22 °C) but are found more frequently in temperatures ranging from 36 to 59 °F (2 to 15 °C). These temperature ranges may vary depending on bull trout life history stage and form, geography, elevation, diurnal and seasonal variation, shade, such as that provided by riparian habitat, and local groundwater influence. Stream reaches that preclude bull trout use are specifically excluded from designation.

Existing Conditions: [describe conditions in project area](#)

Effects to PCE: [describe effects from project to PCE.](#)

(2) Complex stream channels with features such as woody debris, side channels, pools, and undercut banks to provide a variety of depths, velocities, and instream structures.

Existing Conditions: [describe conditions in project area](#)

Effects to PCE: [describe effects from project to PCE.](#)

(3) Substrates of sufficient amount, size, and composition to ensure success of egg and embryo overwinter survival, fry emergence, and young-of-the year and juvenile survival. This should include a minimal amount of fine substrate less than 0.25 in (0.63 cm) in diameter.

Existing Conditions: [describe conditions in project area](#)

Effects to PCE: [describe effects from project to PCE.](#)

(4) A natural hydrograph, including peak, high, low, and base flows within historic ranges or, if regulated, currently operate under a biological opinion that addresses bull trout, or a hydrograph that demonstrates the ability to support bull trout populations by minimizing daily and day-to-day fluctuations and minimizing departures from the natural cycle of flow levels corresponding with seasonal variation: This rule finds that reservoirs currently operating under a biological opinion that addresses bull trout provides management for PCEs as currently operated.

Existing Conditions: [describe conditions in project area](#)

Effects to PCE: *describe effects from project to PCE.*

(5) Springs, seeps, groundwater sources, and subsurface water to contribute to water quality and quantity as a cold water source.

Existing Conditions: *describe conditions in project area*

Effects to PCE: *describe effects from project to PCE.*

(6) Migratory corridors with minimal physical, biological, or water quality impediments between spawning, rearing, overwintering, and foraging habitats, including intermittent or seasonal barriers induced by high water temperatures or low flows.

Existing Conditions: *describe conditions in project area*

Effects to PCE: *describe effects from project to PCE.*

(7) An abundant food base including terrestrial organisms of riparian origin, aquatic macroinvertebrates, and forage fish.

Existing Conditions: *describe conditions in project area*

Effects to PCE: *describe effects from project to PCE.*

(8) Permanent water of sufficient quantity and quality such that normal reproduction, growth, and survival are not inhibited.

Existing Conditions: *describe conditions in project area*

Effects to PCE: *describe effects from project to PCE.*

Determination of Effect:

Conservation Measures: